Spatial Foundations of the Landscape

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Summary

The important point in the process where our visual action develops from 'seeing' to 'landscape' is that the visual action comes to obtain its spatial foundation. I studied mainly how visual actions performed the cognitive development from sensory to spatial views. And a visual-action field was conceptualized as the spatial foundation of the visual action. The visual-action field is composed of the events extending from 'here' to 'there', accompanied by our progressive intelligences. I examined the properties of events in Whitehead's natural philosophy, and attempted to denote visual-action fields by morphological languages. Moreover, I studied the systems of Lewin's and Piaget's life spaces, and analyzed how our life space could develop by means of visual-action fields.

Introduction

If we define a landscape in terms of our visual actions, we can say that 'The landscape consists of the sense-functional and space-formative, metabolic mechanisms between the subject and the environment.' The landscape defined thus is characterized not by the structure of the subject or the environment as such, but by the field of the interdependence between them. In other words, it is phenomena or semantics relative to a visual action to bring the diverse meanings of the landscape. In visual actions, both the seeing subject and the environment looked at, or the situations of the relationship between them, play important roles. If a landscape theory should not think much of the visual action as the behavior to be grasped in a whole, the landscape would be resulted in the question of either the self, the factor of the subject, or the object, the factor of the environment, which is each term of the relationship between them; in the former, the landscape theory may become explanatory and, in the latter, materialistic.

Just as a mere perception is distinguished from a perceptual activity or a sensory-motor intelligence, a simple sight is taken out from the visual action as a whole. Of course, the visual action, in some effects, remains as it is, in this differentiation. Whereas the sight works on the foundations of 2 to 3 dimensional spaces, the space is unified on the basis of visual functions. And as visual actions are organized in the interdependence between the subject and the environment, their spatial foundations are understood by the extension from 'here' caused by the subject to 'there' by the environment. As 'here' is the event in which the self, the factor of the subject, is situated, so 'there' is the event in which the object, the factor of the environment, is situated. Generally to conceive an event, a duration is fundmental. Whitehead notes that 'A duration is discriminated as a complex of partial events' (p. 53 in Whitehead[9]). Conversely, when the duration is related to our visual actions, it differentiates into partial events. The extension from 'here' to

'there' in our visual actions also indicates partial events, each of which has its own spatio
-temporal structure. Events here are above all important. Events there are related to
events here which is situated at the center, and are recognized only thereby. We define
the cognitive situations of the relationship between events extending from 'here' to
'there' as visual-action fields. We shall here examine the visual-action field closely,
referring to our perceptual surroundings.

Structures and Analysis

1 . A visual-action field

Kurt Lewin mentioned somewhat prophetically that our life space could be explained
in terms of a phase space. Though the phase space of Lewin may be a little different from
the topological space of this time, Lewin's idea has the uniqueness in recognizing at once
that the topology which was rising into power in those days was useful to the understand-
ing of human sensation, and so could work as the instrument to analyze our life space.
In order to take life space as a topological space, we must comprehend what the concept
of 'neighborhood' means in life space. Therefore, our interest should be firstly on our
perceptual surroundings. We are not always conscious of our surroundings, though we
can somewhat skillfully perform our activities there. It is the most usual and sensitive
events for us to be conscious of the surroundings. However, we have some difficulties in
representing them in certain ways. So, the main purpose of landscape organization is to
find out our surroundings and to set those in the form of the domain so that they may
be organized as life space. The 'surroundings' correspond to the 'events' in the epis-
temological terms of A. N. Whitehead and B. Russel. Particularly, Whitehead examined
the ordinary events in terms of 'the method of extensive abstraction' of his own, and he
made clear how they were connected with the concept of space. The method is very
similar to that by which Poincaré converged sensory elements upon a point of the retina.

When the surroundings are comprehended in terms of the domains, we can have their
explicit images accompanied with shapes. In order to clarify the domain of the surround-
ings, we should analyze the fact that the events of the 'surroundings' are connected with
points of space. There are, in our perceptual surroundings, three factors—events here,
events there, and the extents from 'here' to 'there'. In order to analyze such surroundings
in terms of the relationship among events, we define them as visual-action fields, If it is
the case that the visual-action field becomes unlimitedly small, this case means either
that events extending from 'here' to 'there' are extremely reduced or that the extent of
events as such converges to 'here'. If we unlimitedly reduce events in this way, we would
attain presently to a point of space. It is natural philosopher's concerns to investigate
minutely the situations of the frontiers where the events and sensations relative to us
exhibit a convergence to an absolute minimum. Poincaré is the first man who systemat-
ically separated the objects in this area into two geometrical structures, and he strongly
emphasized the role of points of space to make the distinction between changes of state
and those of position. Poincaré's principle became common concerns among persons who
tried to examine space; Piaget divided, what Poincaré distinguished between changes of
state and those of position , into physical and geometrical relations, and , in Whitehead,

into intrinsic and extrinsic characters in regard to an abstractive element.

The concept of an abstractive element in Whitehead is highly suggestive in combining events with points of space. A visual-action field is such a situation that events there around centering 'here' are unevenly distributed. Accordingly the abstractive element must work usefully so as to denote the visual-action field by a certain shape. According to Whitehead, an event comes out from the interdependence between mind and nature, and he marks the event by the two properties. 'We perceive one unit factor in nature; and this factor is that something is going on then—there' (p. 75 in Whitehead[9]). This factor is, as he says, the events which are retained in the very passage of nature. He used the term of the abstractive set to explain the character of an event, and provided the following properties for any abstractive set; (1) of any two members of the set, one contains the other as a part, and (2) there is no event which is a common part of every member of the set (p. 79 in Whitehead[9]). Whitehead says allegorically that such a set has the properties of the Chinese toy which is a nest of boxes, one within the other, with the difference that the toy has a smallest box. Gibson also, though his event has an environmental character, mentions properties of the environment which has the structure of a nest of boxes without any inherent unit (p. 9 in Gibson[1]). As stated above, it may be said that the abstractive set has the two properities of 'envelopment' and 'infinite' as general properties common to an event.

How can an abstractive set get to a point of space? In other words, what links an event with a point? We shall here summarize Whitehead's notions. He conceived the concept of an abstractive element, taking a step forward from that of an abstractive set. 'It is evident that any two abstractive sets which are equal to a third abstractive set are equal to each other. An abstractive element is the whole group of abstractive sets which are equal to any one of themselves' (p. 84 in Whitehead[9]). Two abstractive sets may each cover the other, and then the two sets are equal in abstractive force. The possibility of this equality of abstractive sets arises from the fact that both sets are infinite series towards their small ends. The significance of the equality of abstractive sets arises from the assumption that the intrinsic characters of the two sets are identical. 'Thus an abstractive element is the group of routes of approximation to a definite intrinsic charcter of ideal simplicity to be found as a limit among natural facts' (p. 84 in Whitehead[9]). So far as an instantaneous space is concerned, it must be an assemblage of abstractive elements considered in the interdependence among them. Hence such an abstractive element must, in a sense, exhibit a convergence to an absolute minimum of intrinsic character. This is the point of Euclidean plain expressed as being without parts and without magnitude. The abstractive element summarized above is the important concept to link our surrounding events with geometrical structures (points of space and dynamical sets). Whereas a mathematician intuitively expresses phenomena in the metaphor of geometrical structures, Whitehead, a natural philosopher, made his effort to create the concept which is situated on the way of linking phenomena with structures and forms. For Whitehead, a 'locus' always means a 'locus of points' (p. 300 in Whitehead[10]). Thus there exist morphological principles (relationships among points) behind ordinary events (loci). The concept of 'space' has two meanings; one means the perceptual space

which is most common, such as the vessel in which objects are taken, and the other is the thoughtful space which represents geometry. In general the perceptual space is considered to be the ordinary space. But even if we are asked how this space is related to our ordinary behavior, we cannot answer this question at once. We are inclined to take the perceptual space as a simple visual image. The perceptual space is linked, through the behavior of muscular sensation, with the thoughtful space behind it. This is the important fact for persons who try to discuss life space, and even persons who think of themselves as designers cannot fail to take an interest in the rigid space. There are explicitly delicate shades between arts like paintings and creations of life space. Natural philosophy is very useful to the comprehension of fundamental relationship between the perceptual and the thoughtful spaces. The abstractive element of Whitehead is supposed as the group of routes of infinite series along which ordinary events (life space is the accumulation of ordinary events) are bound for their small ends. And this element is the useful concept for describing phenomena in terms of morphological principles or morphological languages. From the applied view point of this paper, the route of abstracting an abstractive element is limitedly regarded as that of abstracting the morphological quality of space; that is to say, we shall denote an abstractive element by a spatial element, and an abstractive set simply by a set. Thus we have been able to obtain the new concept to link our visual actions with the concept of space, and so we are preparing for the description of morphological languages of visual-action fields.

The visual-action field is the special total situation for the subject, and has the subjective nuance which cannot be explained in terms of the concept of the environment. Lewin formulated a behavior pattern (B) as the function (F) of life space, saying that 'We must regard a person and its environment as the composition of various factors in the interdependence between them in order to comprehend and predict its behavior. We call the totality of these factors the life space of the person (LSp), and denote it by $B = F$ (P, E) $= F$ (LSp), where P is the person and E is the environment' (p. 231 in Lewin[5]).

The life space mentioned above is unlike only a vessel; that is to say, there exist vivid actions of persons in its center, and accordingly the substantial space is considered (Lewin, in another passage (p. 242 in Lewin[5]) states that the structures of life space indicate the topological relationship among the parts, and thus can be analyzed by topology). Lewin's life space can appropriately explain a visual-action field. That is to say, though the visual-action field is the more limited than life space, it consists of the totality of certain active factors in the interdependence between a person and its environment. And it is the field structured by the progressive intelligences from perceptual activities of lower order to inferences and thoughts of higher order, in regard to the subject. Hence the equilibrium of visual-action fields changes according to the stage of psychical activities of the subject. Though our cognitive actions are usually done with the object of the acquisition or recovery of an equilibrium, they do not always accomplish their object. For the attainment of the equilibrium, there must be a certain sort of balance or system among cognitive actions occurring in the field. In the group of actions, such total situations of the equilibrium that some actions, even if each action is not so, are well adapted to the environments, may be produced each time.

In order to investigate the mechanism of the equilibrium in the visual-action field, the relationship between events here and events there has an important meaning. The events which are 'here' are those where the self is situated, and are the world where the physiology or logic of the subject's mind works effectively. On the other hand, the events which are 'there' consist of the relationship between cause and effect. In the visual-action field events here and events there, going hand in hand, aim at a total situation; the subject, first of all, finds out events here, and it follows from this finding that events there are sorted out. And both sorts of events, in visual-action fields, fuse or co-ordinate with each other, keeping the balance. Then the visual-action field is considered to be the potential relationship of events extending from 'here' to 'there'. We can denote these relationships by the sets. When the sets of events here converge to their center along a certain series, then we can find out a view point. This fact accelerates the centralization and organization of the self, and brings the relationship of a neighborhood to the situation. Next, when events or actions here are turned towards the external world as reactions of their centralized forces, then the events which they meet are nothing but events there where there exist objects and points. These facts realize the decentralization of the self, and the relationship of the arrangement of objects operated by the self. we can recognize the transition from the first to the second facts in visual-action field; the first means the static recognition (corresponding to a sensory view), and the second, on the basis of the progressive elaboration of the first, means the displacement of the subject towards the objective world (corresponding to a spatial view).

2. Life space of a visual-action field

The fundamental relationship between the two limited events which are 'here' and 'there' is an extension. The temporal extension can be taken as the passage of the spatial one. A visual-action field belongs to the system of life space, and can be understood by the structure of a subject-environment system. When the spatial extension is regarded as an environmental domain or simply as a domain, then the domain can be formalized in terms of the sets of events. We shall set up a criterion as follows, with respect to the descending series of the domain; (region) → (district) → (neighborhood) → (site) → (place) → ((field)). If needed, we can set 'locality' and 'country' over 'region'. The term 'field', that is, a visual-action field, is not always well situated in the series because of its strong psychological character. And as the field, functioning on the operation of spatial elements, can be internally buried in each domain, it is given in double parentheses. Whereas the domain was taken up as the index of an environmental system, personality can be put as that of a subjective system. Hence life space comes into existence in the siutation that each domain is divided according to various cognitive types of personalities.

$$[\text{Life space} = (\text{Personality}) \times (\text{Domain})]$$

When personality is associated with situations here, the most fundamental space in our visual-action fields is realized. We call it the personal space which is often used in terms of ego psychology (p. 30 in Ichihashi[3]). we can analyze personal space corresponding to the structure of personality discussed by Lewin. Lewin notes that personality consists of both inner-personal and motor-perceptual regions (p. 23 in Landis[4]). The inner-personal

region is further distinguished between core and periphery. And inner-personal and motor-perceptual regions have the internal system boundary of tension and the ego boundary, respectively (Fig. 1). The depth of personality itself can be recognized by the internal system boundary of tension which exists in the inner-personal region. K. Lewin represented the layer-model where the inner-personal region was distinguished between core and periphery. This model is useful to the conceptual distinction between the self and the unconscious aspect of mind, and this one may be different depending on nations and peoples, or adults and children. On the other hand, the ego
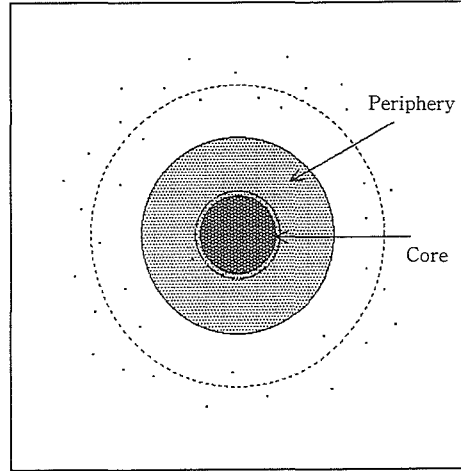

Fig. 1   A structural model of personality.
⊚ Inner-presonal region
⊙ Motor-perceptual region
◌ Ego boundary
◌ Internal system boundary of tension

boundary which exists in the motor-perceptual region is the construct of the boundary between a person and its environment. Bernard Landis pointed out it essentially as the concept of topology (p. 27 in Landis[4]). The ego boundary changes depending on the situations of our surroundings. Lewin did not refer so much to the relationship between the ego boundary and the internal system boundary of tension, but we may think that the internal system boundary of tension is influenced, though it is not so strong as an ego boundary, by the situations of our surroundings. In Fig. 1, a structural model of personality is represented, consulting Lewin's and Landis's ideas. It is considered in ego psychology that personal space is the most fundamental domain at whose center our body is situated, and is nearly consistent with the external ego boundary.

As far as the layer-model of personality is concerned, it is not discussed in detail from the genetic point of view because Lewin is a Gestalt psychologist. Lewin draws personality in terms of concentric circles of five layers, which are of personal character increasingly towards its core and of objective character increasingly towards its surroundings beyond the boundary. Lewin referred to the permeability of each layer, but didn't particularly examine cognitive contents of each layer. Hence we shall denote five layers of pernonality by the cognitive types of 'emotion—thought—intuition—image—perception', ordered from core to periphery. These types were examined with the developmental stage of personality (Fig. 2). At the first stage of development, an emotion is inclined to be consistent with durations which are natural events with a totality. In this situation, certain sorts of unified sensations which costitute the cognitive foundation common to all developmental stages are produced. And so we call an emotional layer an emotional core. At the second stage, the emotional core extends to the external world, so that a perceptual layer is formed in the part of its periphery. On and after the third stage, the new layer is established, squeezing itself between the emotional core and the

layers acquired later. In this way the
imaginary layer is formed between the
emotional core and the perceptual
layer, and at the fourth stage, the intui-
tive layer between the emotional core
and the imaginary layer, and at the
fifth stage, the thoughtful layer
between the emotional core and the
intuitive layer, respectively. These
types represent the cognitive develop-
ment which is gradually internalized
from perception to thought. The
cognitive type of each layer is influen-
ced by the position where the internal
system boundary of tension is drawn.

1. Emotion 2. Perception 3. Image

4. Intuition   5. Thought

Fig. 2 A process model for the development of
personality.

According to Lewin, the nearer it gets to core, the more strongly motives, interests,
attitudes and objects are represented in personality, and, on the contrary, toward
periphery, wants and interests of weaker tension and objectivity than around core are
indicated. These intrinsic structures of personality become factors of fluctuation to the
ego boundary which provides the extrinsic criterion for the interdependence between a
person and its environment.

Personal space has a little extension at whose center a body is situated, and it is the
fundamental physical domain where the emotion and the simple perception of the subject
work. And as personality wears the thoughtful type, personal space jumps over the
physical domain centralized on the self, and steps into the direction possible of the
operational adjustment to the external objective space. The situation that the personality
of the subject is consistent with events here indicates the beginning of the behavior,
which forms the foundations of behavior developed after. Accordingly the personal space
formed at this time is the most fundamental physical domain in visual-action fields. Now
we discuss the cognitive fusion of the self and the environment for the formation of
personal space in visual-action fields. There exist cognitive events there around 'here',
corresponding to events here of the self. We shall first of all regard this as a psychologi-
cal proposition. We perceive objects, whenever they are constructed, according to the
best form or the most primitive form to understand. And nothing is so important as the
factor of a neighborhood for the constitution of the best form or the primitive form. The
Gestalt School claimed the neighborhood in Euclid in regard to the factor of a neighbor-
hood, but Piaget developed the knowledge to the neighborhood in topology (p. 3 in
Holloway[2]). Here we express the preceding proposition in morphological languages ;
and to say that there are the same sets in the transition from sets here of the subject to
sets there of the environment. In such a situation we can see the equilibrium at which
visual-action fields aim, and its topological meaning is as follows; as a spatial element
is first of all the whole group of the sets which are equal to any one of themselves, we
denote the domain where a spatial element works, by life space L. Life space contains
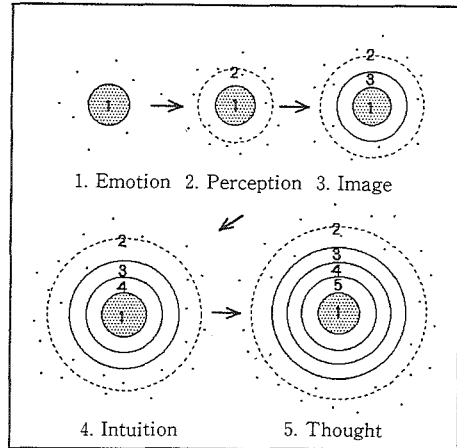
sets here (S) and sets there (S') as parts of its events, and when these sets constitute the most fundamental visual-action field R (S, S'), then personal space is identified. The point (x, t) of R (S, S') is any point of S and the point (x',t') is any point of S'. Here t and t' indicate voluntary time. Then a mapping from S to S' is defined; a mapping h: (x,t) → (x',t'). If h is a mapping of homeomorphism, there are the same sets in the transition from S to S', and they are open sets (p. 40 in Thom[8]). In other words sets there S' are equivalent to sets here S, and they both belong to the same spatial element. Thus a cognitive fusion is produced between events here and events there, and then the fundamental fact of the set here S is established. Personal space is the most fundamental visual -action fields that the perturbation of the set here brings. And even if it happens to meet different situations or other life spaces, as it constantly keeps its intrinsic process of the perturbation, its equilibrium, in visual-action fields, will be secured.

3. Movements of personal space

Personal space has a little extension at whose core a person is situated, and is the first fundamental domain where our behavior encounters with the world. We should further examine the cognitive meanings of our behavior in personal space. Piaget notes that. at nearly five months, a child will carry all objects to his mouth by his hands and he will end by using these behavior patterns to recognize bodies and even to compose the first form of space (p. 35 in Piaget[7]). In this space, the child's body is closely associated with objects at the time when the child performs the global activities of the reflex, differentiates them and accommodates himself to the first freshness of the environment. The reflex is the instinctive activity which has functioned since nursling's birth. In this activity which represents at once the pure reflex and exact accommodation to the environment, assimilation and accommodation remain undifferentiated. And for the differentiation of the activity of the reflex, the child must learn many things from experiences, and concurrently assimilate environments under certain systems. According to Piaget , the newborn child's behavior of grasping objects in the sight becomes prevalent from 4 to 5 months; before that, looking at the objects independently of prehension is observed from 1 to 2 months, and grasping objects independently of vision constitutes, as early as the fouth month, an autonomous schema (pp. 129-130 in Piaget[7]). Around the activities of an autonomous vision and prehension, there exist only scatteringly visual and tactual spaces. There must be reciprocal assimilations among some activities of the reflex so that these spaces may consititute the unified, spatial relationship among themselves. Piaget called this situation the co-ordinations among primary schemata (pp. 180-181 in Piaget[7]). This one has no such operational functions as seen in the co-ordination among secondary schemata developed subsequently, but such function of fusion that the schema of the behavior constituted newly by the encountered actions remains global. Accordingly this emotional space does not exist so much distant from the undifferentiated zone between the subject and the object, and is rather similar to a sensory image. This one is, however, the most ground space in the sense of indicating the first unitary space, and will develop into the perceptual and the thoughtful spaces later. We conceive here that the domain of personal space originates in this ground space. Hence personal space is established on the spatial perception of the child adhered to

emotions and elemental sensations, and, in the case of an adult, when he fixes his eyes on and comes in touch with objects, the perception centralized on the self is considered to be the basis of the constitution of personal space.

We have to examine how other practical spaces come into existence through the operation of personal space. The personal space which is closely associated with emotions and early perceptions represents the domain which is intimately related to the unified sensation of the subject. As it is strongly tied in with the undifferentiated zone of the subject and the object, it works rather to keep the equilibrium. The performance of neighborhoods in personal space, in a whole, realizes certain types of visual-action fields, locally connecting objects with one another. As personal space is inclined to adhere to the field of perception peculiar to the subject, it must work so as to be closely associated with environments in the field of a comparatively natural view, taking off from the field of the subject as such. When the emotional type of intelligence is connected with events here, personal space comes into existence. Thereafter, on the besis of operations of this personal space, various sorts of practical life spaces are realized in the respective ways of the intelligent stages such as the perceptual type is associated with a place, the intuitive type with a neighborhood, and the thoughtful type with a region, respectively. However, some persons are of emotional type, others are of thoughtful type. And there may be the case that a person, though he is ordinarily of emotional type, changes into the thoughtful type according to his situations. Life space must be recognized and created on all possible combinations of personality and domain.

What fundamentally decides the rules of these possible combinations? This corresponds to the question of the discrimination of two geometrical structures discussed in the preceding paper (pp. 41–51 in Ohta[6]); while the consciousness of the subject is centered on the self and remains in events here, personal space, through the function of a neighborhood, tries to be consistent with the perceptual field of the subject. On the other hand, when the consciousness is decentralized and the events extend from 'here' to 'there', the subject comes to connect some perceptual fields with one another, taking off from the adherence to the field itself. The situations that personal spaces are connected with perceptual fields of the subject correspond to the co-ordination of primary schemata and that within secondary schemata in Piaget's psychology. In such situations, the relationship between the conduct and its result is not objective, but of fusion. Accordingly, at that time, perceptual fields of the subject function in a whole, so that personal space forms itself as a location and a neighborhood at whose center the body of the subject is situated. Thereafter, the perception of the subject goes a step further from such a early stage, to the stage where the objects kept in perceptual fields establish themselves with the displacements of fields and are unifield under the total system of successive fields. At this stage, we can see the co-ordination of Piaget's psychology, namely, that among secondary schemata where the relationship among objects takes on objective characters. Personal space is not there self-sufficient, but practically associated with the formation of other life spaces; in other words, persons can well adjust, according to their respective mental states, their personal spaces to external objective spaces, accumulating active and perceptual experiences in comparatively spacious and

objective domains such as a place and a site. Then perceptual experiences are symbol-
ized, and operationally treated, and only in such a way, can work on a plan. As the
domain expands from a place to a site, further to a neighborhood, the plan becomes
increasingly important.

The preceding facts can be summarized in morphologial languages of the system of life
space. Let L and T be life space and time respectively. Then the direct product $L \times T$ is
the domain of life space. And let R (S, S') be a visual-acion field such that any point x,
x' of S and S' respectively. Hence, $\{x=(y, t), y \in L\}$. Then $x'=hx$. we have made a
description of these relations. On the other hand, the set here S required in this way
indicates an open set in the domain $L \times T$. This psycholgically means the instinctive
action by which the subject intends to assimilate environments. On the contrary, no
action can be saved from the influence of its environments, and a person piles up new
accommodations on existing assimilations through his learning. And the mechanism of
the action is as follows; in the first place, there is the primitive assimilation by which the
self tries to catch environments, and, in the second place, there exists the adaptive action
by which assimilation is accommodatingly reserved for the new environment. Mor-
phologically, the first is the perturbation of x, and the second means that the perturba-
tion of x is confronted with the new situation S". Then the displacement G (mapping g)
to the new situation is formulated as follows; $gh: S \rightarrow S''$. As the schemata of the
subject's actions are complicated and objects are physically connected with one another,
the displacement G is represented as various kinds of displacement groups. The displace-
ment group associated with mathematical space may provide the fruitful possibility for
life space.

Consideration and Conclusion

In our present analysis, the visual action was generalized as the situation of the
relationship between 'here' and 'there'—as the visual-action field. And the visual-action
field can be understood by the system of life space. Life space has the structure of a
subject-environment system, and is represented by the following formula;

[Life space=(Personality)×(Domain)]

According to Whitehead, there exists an event in the process of the interdependence
between the subject and the environment. The concept of a spatial element was taken out
from the function of the event. The spatial element connects our personality with the
domain of the external environment. Then the visual-action field is taken as a total field
and formed in a geometrical structure. The spatial element is the fundamental concept
necessary to denote visual-action fields by morphological languages.

I analyzed the relationship between personality and personal space by the aid of Lewin'
s layer-model in regard to personality. I could receive the two suggestions from Lewin'
s ideas; one is—the intrinsic structure of personality assumes the role of control over the
system of tension, and the other is — the system of tension required in this way comes
to lead the external behavior of a person. I preferred to develop Lewin's notions further;
that is to say, I added new cognitive types to the intrinsic structure of personality, and
newly adopted the genetic view point of Piaget's psychology to analyze the cognitive

behavior of the subject. Personalities are closely associated with situations here in such primitive cognitive types as emotions and simple perceptions. Then, the most fundamental life space of the visual-action field—personal space—is realized. And, as our cognitive behavior acquires a high degree of modes, personalities take an interest in external situations, increasingly from 'here' to 'there'. And, at that time, we can observe that existing personal spaces kept in the equilibrium lay the foundation of new situation to give rise to practical life spaces.

The quantitative studies on angles and distances in the landscape have been promoted in many fields. However, the main object of this paper is to study the morphological and qualitative structures of the landscape, such as 'proximity', 'separation' or 'transformation', which form the foundations of the quantitative structure. Hence the epistemology of the landscape was discussed in this paper as well as in the preceding paper (pp. 41-51 in Ohta[6]). Here I defined a spatial element as the most fundamental concept that links natural events with morphological languages of landscapes. In this way, I conceptualized visual-action fields, personal spaces, and various types of life spaces, and denoted them by morphological languages.

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景観の空間的基盤

大　田　征　六

（農地生産力開発学講座）

　我々の視覚行動は，周りを単純に見ることから，外界を特定する景観へ，さらに能動的な活動である景観構成へと発達する．

、前報告で，筆者は景観研究において，外界の計量的構造が我々の視覚行動の結果として生じることを明らかにした．そこで本論文では，景観の空間的基盤を調べるため，再び視覚行動を取り上げ，それが如何なる生活空間を基盤とするかを分析した．これは我々の視覚行動を景観へと認知的に客観化し，自立化するための試みである．

　我々の視覚行動は「ここ」から「あそこ」へひろがる出来事として把握される．これは我々の「周り」であり，ここに視覚行動場が成立する．視覚行動場は我々の視覚行動が空間形成を行う場である．本論文の主な目的はこの視覚行動場を景観研究の概念として確立することにある．そのため筆者はホワイトヘッドの自然哲学の中で，「出来事」の構造を分析し，そこから視覚行動場を景観の形態言語として表現する可能性を探った．

　次に，視覚行動場の最も基礎的な生活空間としてパーソナルスペースを考察した．レヴィンのパーソナリティの構造はパーソナルスペースをよく説明する．ところで実際の我々の視覚行動場は発達するものとして考えられるから，レヴィンのパーソナリティに，さらに発達的観点をもつピアジェ心理学的な考察を加え，分析を行った．ここで視覚行動場はパーソナルスペースを基盤として均衡化することが明らかにされ，また他の実践的な生活空間への発達もこの均衡化を通して可能となることを考察した．